

## REMARKS

The applicant has carefully considered the Office action dated November 18, 2004 and the references it cites. By way of this Response, claims 1 and 3 have been amended and claims 2 and 7 have been cancelled without prejudice to their further prosecution. In view of the following, it is respectfully submitted that all pending claims are in condition for allowance and favorable reconsideration is respectfully requested.

The Office action rejected claims 1-6 as being unpatentable over Nagatani et al., U.S. Patent 6,716,718 when considered in view of Zheng et al., U.S. Patent 6,734,082, and rejected claim 7 as being unpatentable over Nagatani et al. when considered in view of Zheng et al. and further in view of Zhang et al., U.S. Patent 6,284,623. Applicant respectfully traverses these rejections.

At the outset, applicant notes that claim 1 has been amended to include the recitations of claim 7. Thus, the rejection at issue is the rejection of claim 7 (now amended claim 1) based on the combination of Nagatani et al., Zheng et al. and Zhang et al. As explained below, irrespective of how one combines those three references, one does not arrive at the combination recited in amended claim 1.

Specifically, claim 1 recites forming a groove on an edge portion of the intermediate nitride layer of a multi-layered insulating structure; and depositing a liner insulating layer in the groove of the edge portion of the intermediate nitride layer, and on an edge of the upper oxide layer. However, Nagatani et al. do not form a groove in the edge of an intermediate silicon nitride layer (they form a groove in a polysilicon layer 3a). Nagatani et al.

also fail to deposit a liner insulating layer on any portion of its silicon nitride layer (4a), and do not deposit a liner insulating layer on an edge of an upper oxide layer. Indeed, Nagatani et al. does not even have an upper oxide layer.

Zheng et al. do not overcome these deficiencies. In particular, Zheng et al. also fail to form a groove in the edge of an intermediate silicon nitride layer (they form a groove in a silicon dioxide layer 3). Further, Zheng et al. do not deposit a liner insulating layer on an edge of an upper oxide layer. Indeed, like, Nagatani et al., Zheng et al. do not have an upper oxide layer. Thus, irrespective of how one picks and chooses between the methods of Nagatani et al. and Zheng et al., one does not arrive at a method including forming a groove on an edge portion of an intermediate nitride layer of a multi-layered insulating structure; and depositing a liner insulating layer in the groove of the edge portion of the intermediate nitride layer and on an edge of the upper oxide layer.

Zhang et al. do not overcome the deficiencies of Nagatani et al. and Zheng et al. In particular, although Zhang et al. form a groove in the edge of silicon nitride layer 306, they do not deposit a liner insulating layer in that groove. Thus, none of Nagatani et al., Zheng et al., and Zhang et al. teach or suggest depositing a liner insulating layer in the groove of the edge portion of an intermediate nitride layer as required by claim 1. Therefore, irrespective of how one combines Nagatani et al., Zheng et al., and Zhang et al., one does not arrive at the combination of claim 1.

Furthermore, Zhang et al. *removes* the upper oxide layer 308 *before* forming the liner oxide layer 604 (Col. 4, lines 39-45). Therefore, it is quite impossible for Zhang et al. to teach or suggest depositing a liner insulating

layer on an edge of the upper oxide layer. Since, as discussed above, neither Nagatani et al. nor Zheng et al. has an upper oxide layer, those references also fail to teach or suggest depositing a liner insulating layer on an edge of the upper oxide layer. As a result, irrespective of how one combines Nagatani et al., Zheng et al., and Zhang et al., one does not arrive at a method including depositing a liner insulating layer on an edge of the upper oxide layer. Accordingly, the combination of Nagatani et al., Zheng et al., and Zhang et al. cannot fairly be said to meet the recitations of claim 1.

In view of the foregoing, it is respectfully submitted that claim 1 and all claims depending therefrom are in condition for allowance.

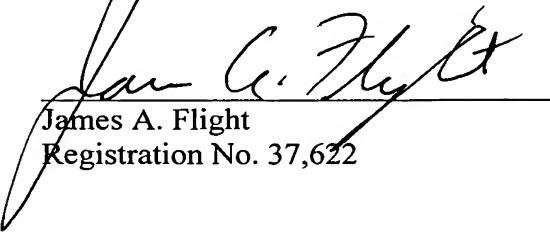
Before closing, the applicant notes that the amendment made to claim 3 is broadening and, thus, not necessary for patentability. Consequently, the amendment to claim 3 does not give rise to prosecution history estoppel or limit the scope of equivalents of claim 3 under the doctrine of equivalents.

If the Examiner is of the opinion that a telephone conference would expedite the prosecution of this case, the Examiner is invited to contact the undersigned at the number identified below.

Respectfully submitted,

HANLEY, FLIGHT & ZIMMERMAN, LLC.  
Suite 4220  
20 North Wacker Drive  
Chicago, Illinois 60606  
(312) 580-1020

By:

  
James A. Flight  
Registration No. 37,622

March 3, 2005